

IN THE SPECIFICATION:

Please amend the specification by inserting the substitute specification being filed concurrently herewith.

IN THE CLAIMS:

Please AMEND claims 1 and 4-11, and ADD new claim 12, as presented in the substitute specification. Please note that all claims currently pending in this application are reproduced in the substitute specification for the Examiner's convenience.

REMARKS

Applicants request favorable reconsideration and allowance of the subject application in view of the preceding amendments and the following remarks.

To place the application in better form, Applicants submit herewith a substitute specification, which includes a new abstract. For the Examiner's convenience, also provided is a marked-up copy of the original specification showing the portions thereof which are being changed. The substitute specification includes the same changes as are indicated in the marked-up copy. Applicants' undersigned attorney has reviewed the substitute specification and submits that the substitute specification contains no new matter.

By separate paper, Applicants request approval to label Figure 1B as -- PRIOR ART --, in accordance with the Examiner's request. No new matter has been added by this change.

Claims 1-12 are now presented for consideration. Claims 1 and 7-12 are independent. Claims 1 and 4-11 have been amended to clarify features of the subject invention, while claim 12 has been added to recite additional features of the subject invention. Support for these changes can be found in the original application as filed. Specifically, support for the changes to independent claims 1 and 7-11 can be found in the original disclosure with respect to the embodiment shown in Figure 2, in which an intermediate image P2 is produced by one of the divided lights, being divided by the beam splitter 9. Also, independent claim 12 is supported by the original disclosure. Specifically, support for this claim can be found in the original disclosure at least on page 14, at line 20, to page 18, line 3. Therefore, no new matter has been added.

Applicants request favorable reconsideration and withdrawal of the rejections set forth in the above-noted Office Action.

Claims 1-11 were rejected under various statutory bases as being unpatentable over U.S. Patent No. 4,869,593 to Biegen, taken alone, or in combination with U.S. Patent No. 5,783,342 to Yamashita et al. Applicants submit that the cited art, whether taken individually or in combination, does not teach many features of the present invention, as previously recited in claims 1-11. Therefore, these rejections are respectfully traversed. Nevertheless, Applicants submit that claims 1-12 amplify the distinctions between the present invention and the cited art.

The present invention, as recited in independent claims 1 and 7-11, is directed to various aspects of a position detecting system, an exposure apparatus, a device manufacturing method, an inspecting system and a position detecting system. These claims recite, among other features, that a position detecting system includes an optical system for

dividing incoherent light from beam coherence-transforming means, for example, into divided light beams, wherein one of the divided light beams produces an intermediate image and light from the intermediate image is directed to illuminate a target upon the surface of an object, while another of the divided light beams is directed to be reflected by a surface being optically conjugate with the intermediate image.

Applicants submit that the cited art does not teach or suggest such features of the present invention, as recited in these independent claims.

The Biegen patent shows the use of a polarizing beam splitter 30 to divide light, with one of the divided light beams being imaged upon a test surface 48, as shown in Figure 3 of the patent and discussed at column 7, lines 40-55. Applicants submit, however, that the Biegen patent does not teach or suggest forming an intermediate image with the use of one of the divided light beams and directing light from the intermediate image to the test surface 48. Applicants submit, therefore, that the Biegen patent does not teach or suggest the salient features of Applicants' present invention, as recited in independent claims 1 and 7-11.

Applicants further submit that the remaining art cited does not cure the deficiencies noted above with respect to the Biegen patent.

The Examiner relies on the Yamashita et al. patent for teaching the use of exposure means with position detecting/alignment means, in the field of semiconductor exposure/photolithography. Applicants submit, however, that the Yamashita et al. patent, as with the Biegen patent, does not teach or suggest the salient features of Applicants' present invention, as recited in independent claims 1 and 7-11, which have been discussed

above. Therefore, that patent adds nothing to the teachings of the Biegen patent that would render obvious Applicants' present invention recited in those claims.

For the reasons noted above, Applicants submit that independent claims 1 and 7-11 patentably define features of the subject invention. In addition to these claims being allowable, Applicants submit that independent claim 12 patentably defines features of the method of detecting a mark formed on an object of the present invention. That claim recites, among other features, a step of obtaining a third image of a mark on the basis of a difference between first and second images. Applicants submit that the cited art does not teach or suggest such features of the present invention, as recited in this claim.

The Biegen patent discusses moving the reference surface substrate 40 with a piezoelectric transducer 80, thereby to adjust the interference pattern imaged upon the photosensitive device 58. This is shown in Figure 3 and discussed at column 8, lines 31 to 39, of that patent. The Biegen patent, however, does not teach or suggest the salient features of Applicants' present invention as recited in independent claim 12, as noted above. Applicants further submit that the Yamashita et al. patent likewise does not teach or suggest such features of the present invention.


For the foregoing reasons, Applicants submit that the present invention, as recited in independent claims 1 and 7-12, is patentably defined over the cited art.

Dependent claims 2-6 also should be deemed allowable, in their own right, for defining other patentable features of the present invention in addition to those recited in independent claim 1. Further individual consideration of these dependent claims is requested.

Applicants further submit that the instant application is in condition for allowance. Favorable reconsideration, withdrawal of the rejections set forth in the above-noted Office Action and an early Notice of Allowance are requested.

Applicants' undersigned attorney may be reached in our Washington, D.C. office by telephone at (202) 530-1010. All correspondence should be directed to our address listed below.

Respectfully submitted,



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